Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_\_\_\_\_\_\_\_\_

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| Photosynthesis Overview  *What is not shown in the picture but is produced in photosynthesis and is used by or stored in plants?*  http://upload.wikimedia.org/wikipedia/commons/thumb/d/db/Photosynthesis.gif/220px-Photosynthesis.gif  \_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_ | http://t2.gstatic.com/images?q=tbn:ANd9GcTm9-m96zR_VYd640dC_wzZMt-m5kFg8J-9H36O_k41qES8knVE  Photosynthesis occurs in the  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   |  |  | | --- | --- | | Main steps | Function of step | | 1. | Produces energy (in the form of \_\_\_\_\_\_\_\_\_\_\_\_  & \_\_\_\_\_\_\_\_\_\_\_\_) necessary for Calvin Cycle | | 2. |  | |
| 1. **LIGHT-DEPENDENT REACTIONS** occur in the   This illustration shows the components involved in the light reactions. Photosystem II uses light to excite an electron, which is passed on to the chloroplast electron transport chain. The electron is then passed on to photosystem I and to NADP+ reductase, which makes NADPH. This process forms an electrochemical gradient that is used by ATP synthase enzyme to make ATP.   |  |  |  |  | | --- | --- | --- | --- | | PSII | ETC | PSI | ATP production | | * Light energizes \_\_\_\_\_\_\_\_\_ in chlorophyll * e-s enter ETC * \_\_\_\_\_\_\_\_\_\_splits into H+ & e-s (replace those just lost in chlorophyll) | e-s move through proteins in membrane  which provides energy to pump \_\_\_\_\_\_\_\_\_\_ inside thylakoid | * Light energizes e-s in chlorophyll * e-s leave ETC. e-s + H+ add to NADP+ to create \_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_ diffuse through ATP  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which causes P to be added to ADP to create \_\_\_\_\_\_\_\_\_\_ | | 1. **LIGHT-INDEPENDENT REACTIONS/CALVIN CYCLE** occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  * \_\_\_\_\_\_\_\_\_\_\_\_\_ in and added to 5-C molecule making 6-C molecule * \_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_ from L-D rxns added to convert 6 C- molecule into two 3-C molecules (G3P). * One 3-C molecule (G3P) exits cycle. Will be used to create \_\_\_\_\_\_\_\_\_\_\_ * Other 3-C molecule (G3P) converted to be used again in cycle   **Summary:**  **\_\_\_\_\_\_\_\_\_ (and energy in form of \_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_ from L-D**  **rxns) used to make G3P which is used to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (sugar)** |

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_\_\_\_

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| Cellular Respiration Overview  **CR occurs in BOTH \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and animals**  https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcRKg2kOkh4oe1j8ArTpQ9IXSQpwzehfcm_8CJr6gIL0zGkhUYXdAw  \_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_ | **🡪GLYCOLYSIS** occurs before CR in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and converts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into two molecules of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Glycolysis also creates the energy molecules \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  Cellular Respiration occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   |  |  | | --- | --- | | Main steps | Function of step | | 1. | Produces energy (in the form of NADH & FADH2) necessary for the ETC | | 2. Oxidative Phosphorylation (Electron Transport Chain + Chemiosmosis) |  |   D |
| 1. **KREBS CYCLE** occurs in the mitochondrial \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ broken down into 2-C molecule and \_\_\_\_\_\_\_ which is released as waste. * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds to 2-C molecule. This new molecule enters Krebs Cycle and bonds with 4-C molecule to create \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Citric acid broken down and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is made * C-molecules continue to be broken down and the energy molecules \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are created   **Summary:**  **Citric acid (6-C molecule) broken down to create energy in the form of**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | 1. **OXIDATIVE PHOPHORYLATION (ETC + Chemiosmosis)** occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ membrane  * \_\_\_\_\_\_\_ removed from \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (which were created in Krebs Cycle) * e-s move through proteins in inner membrane which provides energy to pump \_\_\_\_\_\_\_\_\_\_\_ into the intermembrane space   http://www.teachersdomain.org/assets/wgbh/tdc02/tdc02_img_electronchai/tdc02_img_electronchai.jpg   * \_\_\_\_\_\_\_\_ is final electron acceptor, picks up e-s and H+ to form \_\_\_\_\_\_\_ * H+ diffuse through ATP \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which causes P to be added to ADP to create \_\_\_\_\_\_\_\_\_\_ |